REMARKS

The present application was filed on November 13, 1998 with claims 1-20. In the outstanding Office Action dated December 5, 2001, the Examiner: (i) objected to claim 10 because of informalities; (ii) rejected claims 2, 7 and 11 under 35 U.S.C. §112, second paragraph, as being indefinite; (iii) rejected to claims 1, 2, 6, 7, 12 and 16 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,240,089 to Okanoue et al. (hereinafter "Okanoue"); and (iv) rejected claims 3-5, 8-11, 13-15 and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Okanoue in view of U.S. Patent No. 6,272,148 to Takagi et al. (hereinafter "Takagi").

In response, Applicants: (i) amend FIG. 1; (ii) amend claims 1, 2, 6, 7, 11, 12 and 16; and (iii) traverse the various §102(b) and §103(a) rejections of claims 1-20 for at least the following reasons.

Applicants wish to bring to the attention of the Examiner that the attorney docket number for the present application has been changed from "3-39-39-6-13" to "3-39-39-3-13".

Regarding the objection to FIG. 1, Applicants have amended FIG. 1 to include the reference numeral 100 indicating that the system shown in FIG. 1 is the mobile communications system 100 referred to in the present specification. Accordingly, withdrawal of the objection is respectfully requested.

Regarding the objection to the incorporation by reference of U.S. Serial No. 09/150,403 and U.S. Serial No. 09/074,582 in the present specification due to the fact that "no copies of the references are found," Applicants provide herewith an Information Disclosure Statement including copies of the two cited U.S. patent applications. Accordingly, withdrawal of the objection is respectfully requested.

Regarding the objection to claim 10, Applicants respectfully submit that the claim, as originally filed, already recites that the phrase "application flow" modifies the term "identifier." As is evident, claim 10 reads: "wherein the address of the mobile user station is a concatenation of the identifiers of the network node, the mobile user station and the application flow." Accordingly, withdrawal of the objection is respectfully requested.

Regarding the §112, second paragraph, rejections of claims 2, 7 and 11, Applicants have amended such claims as suggested by the Examiner to overcome the rejections. Accordingly, withdrawal of the rejections is respectfully requested.

Regarding the §102(e) rejections to independent claims 1 and 6, Applicants respectfully assert that Okanoue fails to teach or suggest all of the limitations defined in such claims.

The invention of claim 1 is directed to a method for use in a mobile user station of a packet-based multiaccess communications system. The method includes the steps of: (i) assigning an address to the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and (ii) transferring packets to and from the mobile user station in accordance with the address, such that a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station. Applicants have amended claim 1 to add the underlined claim language in an effort to further clarify the nature of the addressing technique of the invention. Support for the added language is found throughout the present specification, for example, pages 16 through 18. Claim 6 is an apparatus claim with similar limitations.

In particular, Okanoue does not disclose an addressing format of a single address of a mobile user station that comprises "a combination of an identifier of the mobile user station and an identifier of a network node with which the mobile user station is currently associated." Nor does Okanoue disclose that, in accordance with its addressing scheme, packets are transferred to and from the mobile user station in accordance with the address, "such that a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station." These limitations are expressly recited in independent claims 1 and 6.

The Office Action contends that addresses disclosed at column 7, lines 4-18, of Okanoue are the same as the addressing technique of the claimed invention. However, the addresses mentioned in Okanoue are significantly different than the addressing arrangement of the claimed invention.

In accordance with the invention, knowing the mobile station identifier (ID) and the ID of the network node with which the mobile user station is currently associated enables a source node to communicate with the mobile user station without the need to obtain (e.g., lookup, request, etc.) any additional address information. For instance, a hop-by-hop routing algorithm employed in the inter-node network needs to know nothing besides the node ID to be able to deliver packets to the destination node. Once a packet gets to the node with which the intended mobile user station is associated, the packet is delivered to the mobile user station on the basis of the mobile station ID.

However, in Okanoue, the mobile station has two separate addresses associated therewith: (1) a specific identifier (or logical address); and (2) a location address. These two addresses must be sent to a so-called "home agent." As mentioned above, under the addressing technique of the claimed invention, the mobile station has one address associated therewith, i.e., "a combination of an identifier of the mobile user station and an identifier of a network node with which the mobile user station is currently associated."

Further, all of the techniques described in Okanoue are designed to overcome problems with conventional multicasting approaches (column 1, lines 23 through 43). That is, problems exist in including certain mobile stations that are located in sub-networks of the overall communications network in a multicast group. Thus, all the techniques of Okanoue are related to controlling multicast groups. The routing of packets in Okanoue is still subject to the requirement that a node look up additional information, such as which home agent the mobile terminal is connected to, before a packet can be routed to the mobile.

In a significant departure from Okanoue, once a mobile user station configured according to the present invention receives the destination mobile station ID and destination network node ID, it can send packets to the destination by including these fields in packet headers. Thus, no node in the network needs to do any look-ups for location information to forward the packets in the correct direction other than the standard routing actions used in hop-by-hop packet forwarding. On the other hand, if a source terminal in Okanoue were to include just the destination user ID and mobile terminal number in its packets, the transferring nodes in the network would have to do look-ups to determine the home agent to which the destination terminal is attached. Without these look-ups, it would be impossible to forward the packets correctly. The multicasting techniques described in Okanoue fail to alter these requirements.

Accordingly, Applicants assert that claims 1 and 6, and the claims that respectively depend therefrom, i.e., claims 2 and 7, are patentable over the cited reference and therefore allowable. Withdrawal of the rejections is respectfully requested.

Regarding the §102(e) rejections to independent claims 12 and 16, Applicants respectfully assert that Okanoue fails to teach or suggest all of the limitations defined in such claims.

The invention of claim 12 is directed to a method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile

user stations. The method comprises the steps of: (i) assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and (ii) transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations. Applicants have amended claim 12 to add the underlined claim language in an effort to further clarify the nature of the addressing technique of the invention. Support for the added language is found throughout the present specification, for example, pages 9 and 16 through 18. Claim 16 is an apparatus claim with similar limitations.

In particular, Okanoue does not disclose an addressing format of a single address of a network node that comprises "a combination of an identifier of the network node and an identifier of an interface associated with the network node." Nor does Okanoue disclose that, in accordance with its addressing scheme, packets are transferred to and from the network node in accordance with the address, "such that the network node is able to move within the communications system in addition to the plurality of mobile user stations." These limitations are expressly recited in independent claims 12 and 16.

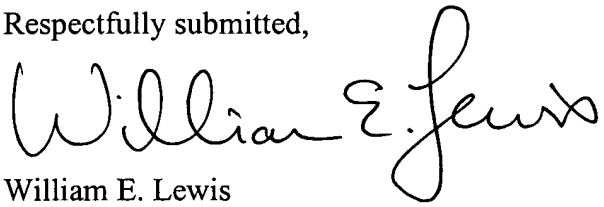
Accordingly, Applicants assert that claims 12 and 16 are patentable over the cited reference and therefore allowable. Withdrawal of the rejections is respectfully requested.

Regarding the §103(a) rejections to claims 3-5, 8-11, 13-15 and 17-20 based on the combination of Okanoue and Takagi, Applicants respectfully assert that, since Takagi fails to remedy any of the above-described deficiencies associated with Okanoue, such dependent claims are patentable over such combination for at least the reasons given above with respect to independent claims 1, 6, 12 and 16. However, Applicants also assert that such dependent claims recite patentable subject matter in their own right.

Attached hereto is a marked-up version of the changes made to the specification and claims by the present Amendment.

In view of the above, Applicants believe that claims 1-20 are in condition for allowance, and respectfully request the withdrawal of the §112, §102(e) and §103(a) rejections.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE DRAWINGS

FIG. 1 has been amended as proposed on the marked-up copy of same attached to the present Amendment.

IN THE SPECIFICATION

The paragraph beginning at page 1, line 8, has been amended as follows:

The present application is related to [U.S. patent applications] U.S. Serial No. 09/191,133, filed November 13, 1998 and entitled "Subnetwork Layer For A Multimedia Mobile Network;" and U.S. Patent No. 6,160,804, issued on December 12, 2000 and entitled "Mobility Management For A Multimedia Mobile Network[,]." [both filed concurrently herewith.]

IN THE CLAIMS

Claims 1, 2, 6, 7, 11, 12 and 16 have been amended as follows:

1. (Amended) A method for use in a mobile user station of a packet-based multiaccess communications system, comprising the steps of:

assigning an address to the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and

transferring packets to and from the mobile user station in accordance with the address, such that a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station.

2. (Amended) The method of Claim 1, further comprising the step of assigning another address to the mobile user station when the station becomes associated with another network node of the communications system, the [new] other address being a combination of the identifier of the mobile user station and an identifier of the [new] other network node.

6. (Amended) Apparatus in a packet-based multiaccess communications system, comprising:

a mobile user station configured to respond to an address assigned to the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated such that packets are transferred to and from the mobile user station in accordance with the address and a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station.

7. (Amended) The apparatus of Claim 6, wherein the mobile user station is further configured to respond to another address assigned to the mobile user station when the station becomes associated with another network node of the communications system, the [new] other address being a combination of the identifier of the mobile user station and an identifier of the [new] other network node.

11. (Amended) The apparatus of Claim [1] 6, wherein the mobile user station is further configured for supporting a protocol layer, the protocol layer being located above a medium access control layer in a protocol stack associated with the communications system and providing support to applications associated with the communications system with respect to the mobility of the user station.

12. (Amended) A method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising the steps of:

assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and

transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations.

16. (Amended) Apparatus in a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising:

a network node configured to respond to an address assigned to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node such that packets are transferred to and from the network node in accordance with the address, and the network node is able to move within the communications system in addition to the plurality of mobile user stations.